

Farm Department.

By W. A. PEPPER.

About Insecticides and Their Uses.

Clarence M. Weed, in American Cultivator, submits the following:

It is well known that there are two principal ways in which insects take their food. Some insects bite and chew the parts of the plant upon which they feed, while others are provided with a pointed, tube-like beak, which they insert into the tissues of the plant and suck out the sap. On account of this difference in feeding habits those insects which bite may be destroyed by coating their food with poisons, while the others must be treated with some substance that kills by simply coming in contact with their bodies.

The poisons most commonly used against biting insects are certain chemical compounds, composed in part of arsenic. Paris green is the most important of these. It is a chemical combination of arsenic and copper, containing when pure about 55 per cent. of arsenic. When placed in water the fine particles of the green powder do not dissolve, but remain in suspension. Because of this fact one of the most popular ways of applying Paris green to plants which are in danger of the attacks of biting insects is in a water mixture by means of a force pump and spray nozzle. In its simplest form this consists in mixing about a teaspoonful of the poison in a pail of water, stirring thoroughly to get the powder evenly distributed through the water. A small force pump, to which is attached a rubber tube with a spraying nozzle at the end, is then set in the pail. By working the handle of the pump the liquid with the poison particles in suspension is forced through the tube and nozzles, coming from the latter in a mist-like spray which may be directed upon the plant to be protected, covering each leaf with the liquid. As soon as the spraying of the plant ceases the water begins to evaporate, and rapidly disappears, leaving the particles of Paris green evenly distributed over the foliage. The poison particles will remain in place upon the leaves for some time, so that in case a biting insect feeds upon the poisoned surface, it will eat some of these particles and be killed. Fortunately the poison is not absorbed into the tissues of the plant, so that the process can be carried on without danger to the consumer of the crop. In the course of a few weeks the particles of poison are washed away by rain or dew, or are dissipated through the action of the sunshine.

A substance which is used to destroy insects is called an insecticide or insect killer. Thus Paris green is an insecticide, so, also, are London purple, hellebore and insect powder. Each of these substances may be applied to plants in mixture with water, as already described, or they may be dusted on in the form of a dry powder. Sometimes one may use for this purpose simply a porous bag, out of which the powder is sifted. It is generally better, however, to apply the insecticide by means of one of the many kinds of bellows manufactured for this purpose. When whole fields of potatoes or other crops are to be gone over, one of the better forms of powder guns now upon the market is very desirable. With one of these guns a pound of Paris green can be evenly distributed over an acre of potato vines.

Paris green is so powerful a poison that except when it is applied with the best powder guns, which distribute it very finely and evenly, it is desirable to dilute it with some substance like land plaster, air-slaked lime, flour or road dust. The proportion of poison to diluent varies greatly with different users. One part of poison to twenty parts of diluent serves the purpose if the mixing be thoroughly done.

Barnyard Manure.

As every farmer knows, if the manure heap is too loosely built the decomposition is too rapid. The materials useful for the formation of humus in the soil are destroyed, and the nitrogen, especially that of the urine, escapes into the air, largely in the form of ammonia. On the other hand, if the manure is too firmly packed the decomposition may be too slow and the manure will not become sufficiently disintegrated to produce the best effect in the soil.

A powerful means of controlling fermentation is the supply of moisture. The addition of water lowers the temperature and thus retards fermentation. By filling up the pores of the mass and excluding the air it checks aerobic fermentation when this becomes too active. French authorities maintain that the

principal precautions necessary to prevent losses of ammonia consist simply in regularly and properly watering the manure with the leachings. In case of drought, if the leachings are insufficient, the lack should be made up with water.

The need of keeping manure moist is especially marked in case of horse manure, which is naturally dry and decomposes with great rapidity. The same is true in a less degree of sheep manure. The common and harmful "fire fanging" is the result of an insufficient supply of water and may be readily checked by sprinkling. The sprinkling, however, should be regularly done and the heap kept in a constant state of moisture, otherwise the alternates wetting and drying will result in a loss of ammonia. Preservation of manure in this manner is generally practiced in Europe, and the product obtained is highly esteemed as a fertilizer. It is "very dark colored, or even black, and acquires a highly offensive odor, while the straw in it loses its consistency, and becomes soft and incoherent." This black substance is held by certain French agriculturists to possess special value as a plant food.

In connection with the foregoing, W. H. Beal describes in a bulletin issued by the department of this well rotted manure in France: The manure is placed on slightly inclined plates of packed earth or cement, so arranged that the leachings drain out into a pit from which they are pumped and distributed over the manure heap. It is usual to provide two manure plates so arranged that when one is full (when the manure is eight to ten feet high) it may be allowed to ferment undisturbed while the other is used. The manure is carried from the stables to the top of the manure heap in wheel barrows over an inclined plane of boards. Care is also taken to smooth down the sides of the heap to prevent the too free access of air and the loss of leachings.

Waste on the Farm.

The farm cannot be made to pay until the items of waste are enumerated and taken from the account-book. In the Western States water is wasted in irrigation, while in the East fertility is lost because of no drainage. The soil frequently wastes away from improper tillage or careless treatment. Grain and animal food are wasted through feeding or stacking. Fruits waste because the trees are neglected or poor judgment is used in picking and packing. In whatever field or building waste is discovered, immediate steps should be taken to check the drain and prevent a recurrence.

The most prolific source of loss that has come under my observation is the annual destruction of farm machinery. In a ride of twenty miles through the grain-fields of Utah I counted thirteen harvesters and mowing machines left where last used, and subjected to all the dangers of midwinter. The same story may be told of some of the Eastern States I have visited. Every piece of farm machinery represents an outlay of cash or a note equivalent. What would a banker think of a farmer leaving the money he had loaned him lying in a ditch or on a stump in the corn-field all winter? That is just what many of our farmers are doing every month in the year—leaving money scattered about, to be destroyed by the frosts of winter or the rains of summer.

Another place where waste is noticed on the farm is in the stack-yard. From my house I have looked out upon a straw stack and counted not less than forty dung hill chickens scratching away at the chaff in quest of barley. The stack had been standing for four months, and every day during that time the fowls dug through the snow and sleet to get into the barley chaff. The threshing was done by the best machine in our section of country, but it is a poor testimonial to any thresherman to see his straw stack covered with fowls every day for four months. Surely, there is an enormous waste from the riddles and cylinder of a machine that leaves a green stack matted together with roots, or a sheltered straw pile the rendezvous of scratching fowls. It is poor economy to grow a good crop of grain, harvest it properly and in season, and then have all the profit wasted by worthless threshers.

Again, I notice a waste in feeding the animals collected in the corral or feed-pens. This loss, however, is not from giving the animals too much, but the feeding of too small rations at unusual times. Stock of all kinds should be fed plenty and at regular hours every day. One ton of feed, given in sufficient quantities, and fed with regularity daily, will prove more beneficial than two tons of the same feed doled out occasionally. It is a mistake to feed sparingly, especially

in winter. If horses, sheep or cattle are worth keeping at all they are surely entitled to good daily rations of wholesome food. It is cheaper to waste a little feed in keeping the boxes and stalls filled than to waste flesh by careless feeding or intentional starvation.—Farm and Fireside.

Farm Gossip.

Hens that lay in winter soon pay for their keep.

The best of its class is always most salable, because it is most desirable.

There are nearly seven hundred vessels engaged in carrying grain on the Great Lakes.

Practical farming now includes training of the mind as well as education of the muscles.

Green weeds plowed under and well covered will rot and mingle with the soil to its benefit.

Every farm ought to be provided with a place for taking care of sick or wounded animals—a sort of hospital.

About 20 per cent. of the sheep delivered at Kansas City market are sold to farmers for the purpose of feeding for the mutton market.

Good stabling for farm animals during winter is not only comfortable to the dumb creatures, but it is profitable from a business standpoint.

All classes of products for market should be assorted before being offered for sale, because lots will be graded according to the poorest samples.

Last year about a million sheep were sold on the Kansas City market. It is estimated that the sales there this year will exceed those of 1896 by about 20 per cent.

The farmer who wants to keep his place free from weeds must pay personal attention to that particular part of his business, and not allow weeds to go to seed.

Kansas farmers will have to re-learn the sheep business. Thirteen years ago we had more than a million sheep in the State; now the number is not one-fourth as large.

As the strength of a chain is equal to the strength of its weakest link, so is the standard of articles offered in lots gauged by the quality of the inferior specimens.

There is as much business in practical agriculture as there is in merchandizing or banking. No farmer can succeed if he does not conduct his business on business principles.

The agricultural colleges are beginning to appreciate the fact that they can do a world of good among rural people at their homes. Some of these colleges do now maintain departments of domestic science.

Very deep plowing, if done in the spring, will give better results if two plows are used, one to open a furrow say six or eight inches in depth, the other a subsoiler that will break the ground below and let it remain at the bottom. But if the work be done in the fall, so that the subsoil may be acted upon by frost and wind during winter and then re-plowed in late spring, one plowing is good enough.

In a recent publication of the national Department of Agriculture, it is pertinently alleged that whatever will be effective in raising the grade of the home life on the farm, in securing the better nourishment of the farmer's family, and in surrounding them with the refinements and attractions of a well-ordered home, will powerfully contribute alike to the material prosperity of the country and the general welfare of the farmers.

Co-operation Among Farmers.

A recent dispatch from Indianapolis says that farmers in Franklin, Fayette and Dearborn counties are preparing to make a test of co-operation on a very extensive scale, which will include not only buying as a firm but the selling of their products in the same manner. While there have been a great many schemes of a co-operative nature attempted in Indiana, none has been planned on such a scale. Farmers will buy even their clothing by the lot and boots and shoes by the case. Their household necessities and luxuries will be purchased in the same way, and they will sell their wheat, corn, oats, barley and farm produce as one big company. They see many advantages which a scheme of this kind will possess beyond the simple monetary gain.

In Madison and Grant counties, along the line of the new Gas Belt Electric railway, another scheme is to be tested which will advance the farmers' interests and put him on a more equal basis

with the city man. Electric service for lighting or motive power is to be furnished to him at a nominal cost. He can have his house lighted by electricity and can work all of his machinery with electric power. Already the telephone system has been extended to country homes, and, with the additional service of electric currents which will enable him to enjoy all of the luxuries of the city, even to cooking with electricity if he wishes to, the Indiana farmer will find life worth living. In eastern Indiana he already has natural gas burning in his stoves and jets and the grocer and butcher, as well as the general supply store man, have extended their daily service to his doors. Electric cars are running across his land and the worry of living is reduced to a minimum.

Notes.

Only the best sheep return a profit; the poor ones are a burden to the others.

City and town people prefer to pay better prices for the better things they consume. The remedy for depression in agriculture is to produce high class stock, dairy products and farm crops, and proceeds from the orchard and garden.

The food properties of corn are not changed by grinding; it is still corn, whether served as meal, mush or slop. When feeding hogs, grind only for the aged sows that have lost their teeth, and it is doubtful if they will pay the miller.

Quality gives to the intelligent, progressive farmer who raises improved stock a premium on his high grade beef, mutton and pork as well as on his high class horses, and places him above the wild ranch stock breeders of South America and Australia in European markets.

It is stated on the authority of Thomas Dixon and Professor Lomas, that hay or straw is a remedy for bloat—nature's remedy; and that cattle on clover, sorghum, or the green succulent feed, as soon as threatened with bloat instinctively turn to the remedy, if accessible. They recommend that a stack or pen of hay or straw be placed in the field where the animals can go to it at will, and that then there will be no fatality from bloat.

The fact that the country is short on swine and long on corn renders it especially desirable this year that growers should feed and care for the pigs in a way that will develop them rapidly and perfectly. The tendency is to feed the growing pigs too much corn. Some corn is all right, but the ration should contain some more nitrogenous food to give a good development of bone and muscle; then when you come to fatten on corn you will have something to build on.—Rural World.

The results of various trials declare corn to be the most profitable grain for fattening sheep. But practice teaches that other grains must be fed with it to maintain the appetites of the sheep and keep them otherwise healthy. It will likely be safest and best under most conditions to start the fattening with oats or bran, then introduce as much corn as possible, and finish the fattening with a mixture containing one part oats, one part oil meal, and three parts corn, by weight.—Prof. J. A. Craig.

The American Cultivator says that young men are leaving New England daily, either because they dare not marry such women as work in the mills and factories, or because having married such a one they cannot live either happily or comfortably together. It is not as it was in the early days of the Lowell mills, when the mill girls were the daughters of farmers, who had enjoyed all the advantages of the district school, and were well taught in household duties at home before they went out to seek for labor.

The question of quality in bacon is one of experience. Most bacon raisers say, first, that swine used for this purpose should be long in the body with a tendency to put on fat slowly, that is, grow muscular; that they should have plenty of exercise and pure air. Both these may be secured in the open field and wood. They should be from ten to fifteen months old and not what, in these days, we call "fat." From the experience of bacon raisers both North and South, we come to the conclusion that the best bacon is not produced from our most highly improved breeds as they are commonly fed. As a rule, the bacon of the South is far superior to the North. It is usually secured from a nondescript hog nearly mature, one which has had to "hustle" for a living except during the last few weeks of its life, when it is finished off by feeding a full ration of corn.—Country Gentleman.